Attachment B

PATENT
Docket No. 315.0001 0101

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	JANSSEN, Terrance E.	Group Art Unit:	3753
Serial No.:	10/721,698	Examiner:	JOHN K. FORD
Confirmation No.:	6282		
Filed:	November 25, 2003		

For: HEAT EXCHANGE APPARATUS, SYSTEM AND METHODS REGARDING SAME

DECLARATION UNDER 37 CFR 1.132 OF TERRANCE E. JANSSEN REGARDING SECONDARY CONSIDERATION OF COPYING

Commissioner for Patents
Mail Stop Amendment
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Purpose of Declaration

This declaration is to set forth evidence of copying by others for evaluation in the determination of non-obviousness of the claims pending in the above-identified application.

I, Terrance E. Janssen, state the following:

1. The claimed invention pending in the above-identified application was conceived in the United States prior to 31 January 2002.

2. Attached as Exhibit A to this declaration is a final design drawing completed in December 2001 using the office AutoCAD with the assistance of employee, Brian Urlaub. The drawing as clearly labeled in Exhibit A shows a "GFX Double Walled Heat Exchanger" inserted

in a "City Water Main." As one skilled in the art recognizes, a city water main is a conduit that operates in a flooded state. As further shown in Exhibit A, the system includes "Geothermal Heat Pump(s)" that form a "Closed Loop" with the "GFX Double Walled Heat Exchanger" inserted in a "City Water Main." Exhibit A further shows an "Insulated Vault with Lockable Cover" enclosing the "GFX Double Walled Heat Exchanger" inserted in a "City Water Main." Further, Exhibit A shows a "Contaminate Monitor Alarm and Shut Down Switch" in the "Closed Loop Line Under Ground" as well as a "Flow Meter."

3. Attached as Exhibit B is a home page of a website advertising trademarked "GFX" heat exchangers; the page is used to provide definition to the term "GFX Double Walled Heat Exchanger" which occurs as a label on Exhibit A. As shown therein, and as described in U.S. Patent No. 4,619,311 issued 28 October 1986 and referenced on the home page (hereinafter GFX Patent), a "GFX" type heat exchanger (which was a trademarked product that was described in the art and available prior to 31 January 2002) includes an inner waste pipe that carries waste water from sources such as bathtubs, shower stalls, etc. in a gravity flow type of situation. An outer pipe is provided that contains cold water to be heated by the gravity flow of fluid in the inner waste pipe. A co-inventor of the GFX patent is Carmine Vasile.

4. From January 7, 2002, I had numerous telephone conversations with John Lebo regarding manufacturing that portion of the invention that can be inserted into a water main according to the present invention and as shown in Exhibit A. Attached hereto as Exhibit C is a copy of an e-mail dated June 28, 2002 to John Lebo who is the president of Doucette Manufacturing setting forth cost of manufacturing a part that is inserted into the municipal water main. This e-mail included a copy of a drawing similar to that shown in Exhibit A.

5. The e-mail described in paragraph 4 herein was also sent to Carmine Vasile (associated with Waterfilm Energy, Inc., and co-inventor of U.S. Patent No. 4,619,311 which covers GFX

technology) as noted by the "Cc: Carmine, Vasile (E-mail) <gfx-ch@msn.com>" on the email of Exhibit C.

6. Further, I had various communications with Carmine Vasile regarding the use of a GFX type heat exchanger in a system as described in the pending claims of the above-identified application. Although copies of e-mails are not available due to a computer crash, a history of e-mails was recovered and still available. The history is provided as Exhibit D. The email that was about the time I mentioned such use to him is highlighted on the history. It is an e-mail in response to a lead for a project concerning "Telemark Resort" dated "8/26/2002."

7. Following the discussions and as evidenced by Exhibits E-1 through E-3, I noticed that the claimed invention had been copied by Waterfilm Energy, Inc. with whom Carmine Vasile is associated and to whom I had described the present invention. As evidence of such copying, attached are Exhibit E-1 which shows the archived gfxtechnology.com web sites, including the dates of when the site was updated. As shown by the archived Apr 25, 2003 site, which pertinent parts are partially included herein as Exhibit E-2, the present invention had not yet been copied. Rather, the web site showed only use of the GFX heat exchanger for waste water applications. However, as shown by the archived Jul 18, 2003 site, which pertinent parts are partially included herein as Exhibit E-3, the present invention as recited in at least the pending independent claims was clearly shown. For example, such claims are shown by the link entitled "Geothermal Applications Include Increasing Safety of "Water+" HVAC System" on page one of the Exhibit E-3 which provides a link to the last two pages of the Exhibit E-3. The last page of Exhibit E-3 shows a GFX type heat exchanger inserted into a city water main as described on the web site in the same manner as recited in the pending independent claims.

8. For years prior to my invention, according to my knowledge, the only heat exchanger contemplated for use in water mains were heat exchangers that removed water from the water

main, processed or otherwise manipulated that water for heat exchange, and then returned the water to the main. Not until my present invention (i.e., well over 10 years after the GFX Patent No. 4,619,311 issued in 1986), and disclosure of same to personnel associated with the GFX patent, did Waterfilm Energy, Inc. with whom Carmine Vasile is associated, design a system where a GFX type heat exchanger is used in a city water main.

9. The evidence of copying above is evidence that the present invention is not obvious, even to those of one skilled in the art (e.g., Carmine Vasile and those associated with GFX technology), who themselves had extensive knowledge of heat exchanger technology. Only after my disclosure to them did they recognize the advantages and potential of the claimed invention, leading to the copying of my invention.

Declaration

As a person signing below:

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signature

Full Name Terrance E. Janssen

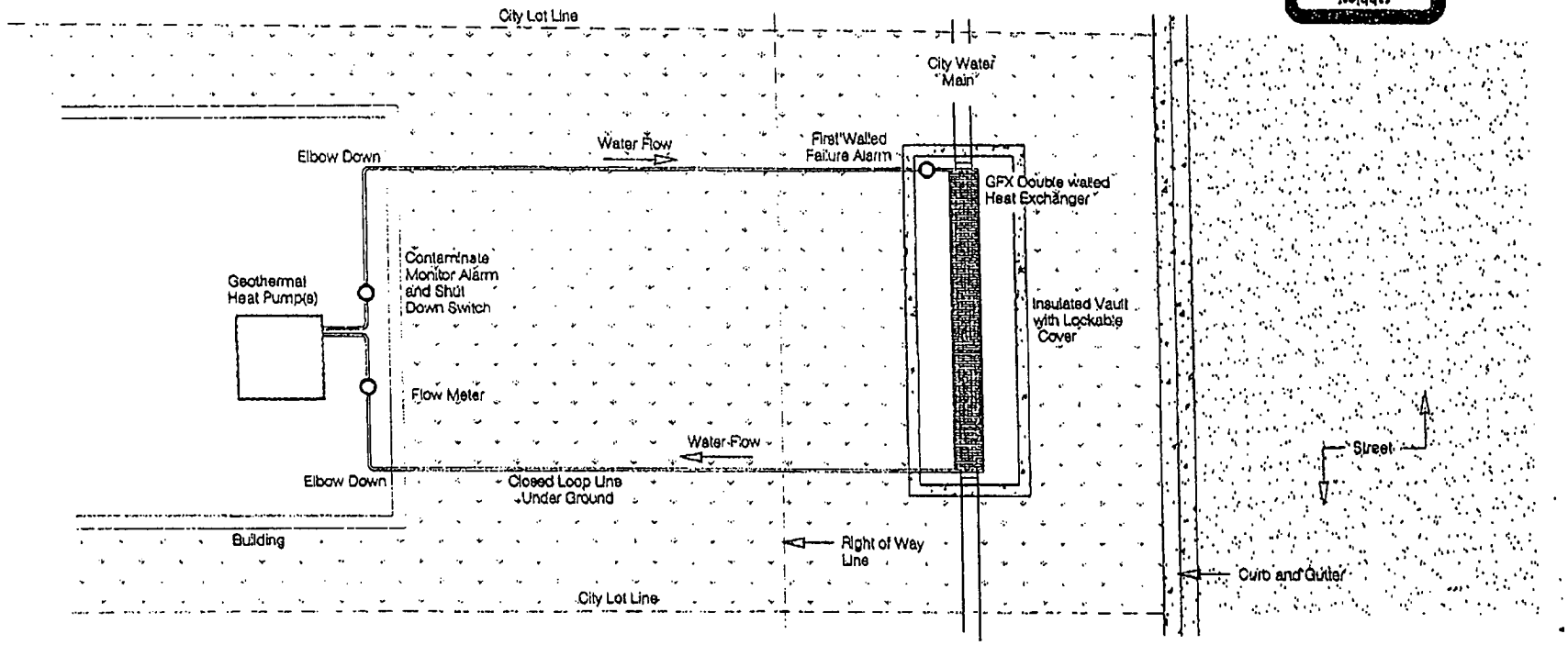
Signature _____

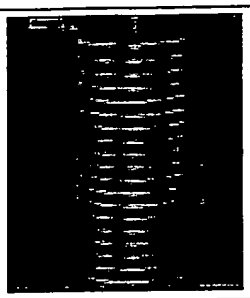
Date 12/6/06 Country of Citizenship USA

Residence 252 Hermosita Drive St Pete Beach, FL 33706

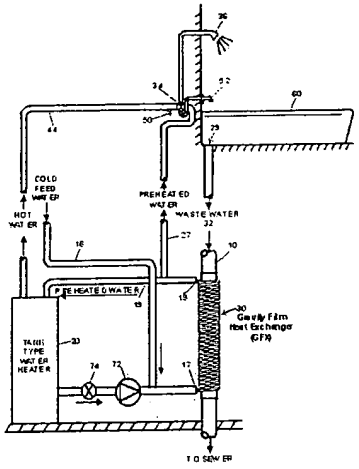
Post Office Address _____

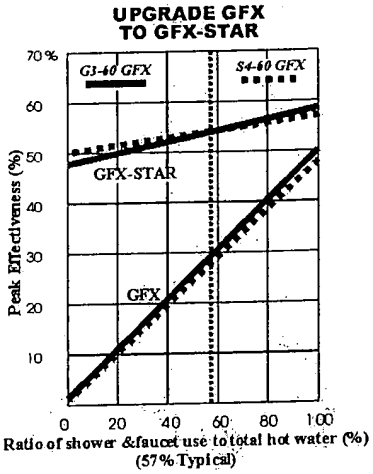
EXHIBIT A

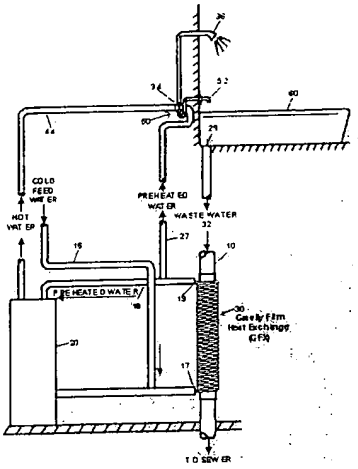




GFX™ *Heat-Xchanger & Water Heater Booster*







GFX-STAR™

Active system for baths, dishwashers and other batch-flow uses

GFX-STAR Saves Energy Conventional DHR Systems Miss*

GFX™

Passive system for showers and other continuous-flow uses

Buy Online | Internet Specials | Dealer Discounts
Models & Prices | Technical Information | Dealer Password
Testimonials | Commonly Asked Questions | Installation Video
GFX Featured in Rocky Mountain Institute (RMI) Home Energy Brief #5 "Water Heating"
Compares Savings of Electric, Gas, Geothermal, Heat Pump & Solar Water Heaters
Solar and Efficient Water Heating: 2005 DOE Roadmap Adds Drainwater Heat Recovery
"Zero-Energy" Homes by Hurst Construction

Contact Us | Manufacturer's Brochure

Patent Pending, U.S Patent #4,619,311 -- Coils & Tubes Conform to ASTM B88 & B306 Specifications
Approved for use in Canada with potable water according to UL File #SA8583 a/k/a MH26850, MH29466 & E173200

* ***Improving the Efficiency of Drainwater Heat Recovery*** [DHR], Energy Design Update, Dec. 2005

Exhibit B

United States Patent [19]

Vasile et al.

[11] **Patent Number: 4,619,311**

[45] **Date of Patent: Oct. 28, 1986**

[54] **EQUAL VOLUME, CONTRAFLOW HEAT EXCHANGER**

[76] Inventors: **Carmine F. Vasile; Sheila F. Vasile,** both of 4 Cordwainer La., Huntington, N.Y. 11743

[21] Appl. No.: **749,662**

[22] Filed: **Jun. 28, 1985**

[51] Int. Cl.[4] **F24H 3/00**

[52] U.S. Cl. **165/47**; 165/909; 165/914

[58] Field of Search ..... 165/47 BW, DIG. 12, 165/174, 154, 909, 914; 126/362; 4/598; 237/19

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,341,263 7/1982 Arabian ..... 165/47 X

4,352,391 10/1982 Jonsson ..... 165/47 X

FOREIGN PATENT DOCUMENTS

3011111 10/1981 Fed. Rep. of Germany 165/47

Primary Examiner—Henry Bennett

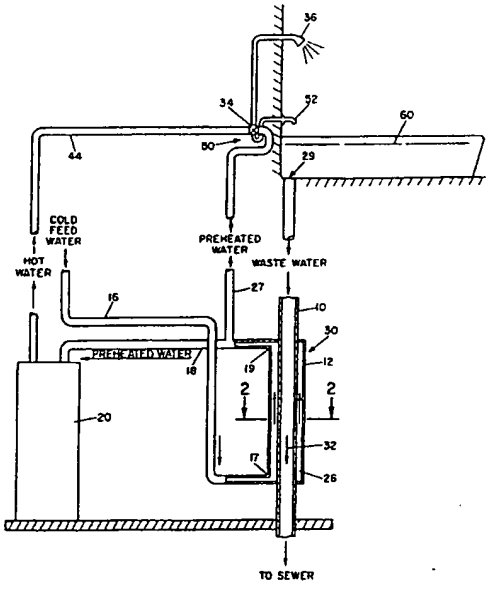
Attorney, Agent, or Firm—F. R. Agovino

[57] **ABSTRACT**

A system for recovery systems improving heat recovery from hot waste water is provided whereby cold feed water is preheated by means of extracting heat from hot waste water by passing said hot waste water and said cold feed water through a heat exchanger. Said preheated feed water is directed simultaneously to the hot water heater and to mixing valves at the point of usage of tepid water. Equal volumes of waste water and cold feed water flow through the system.

4 Claims, 2 Drawing Figures

Exhibit B



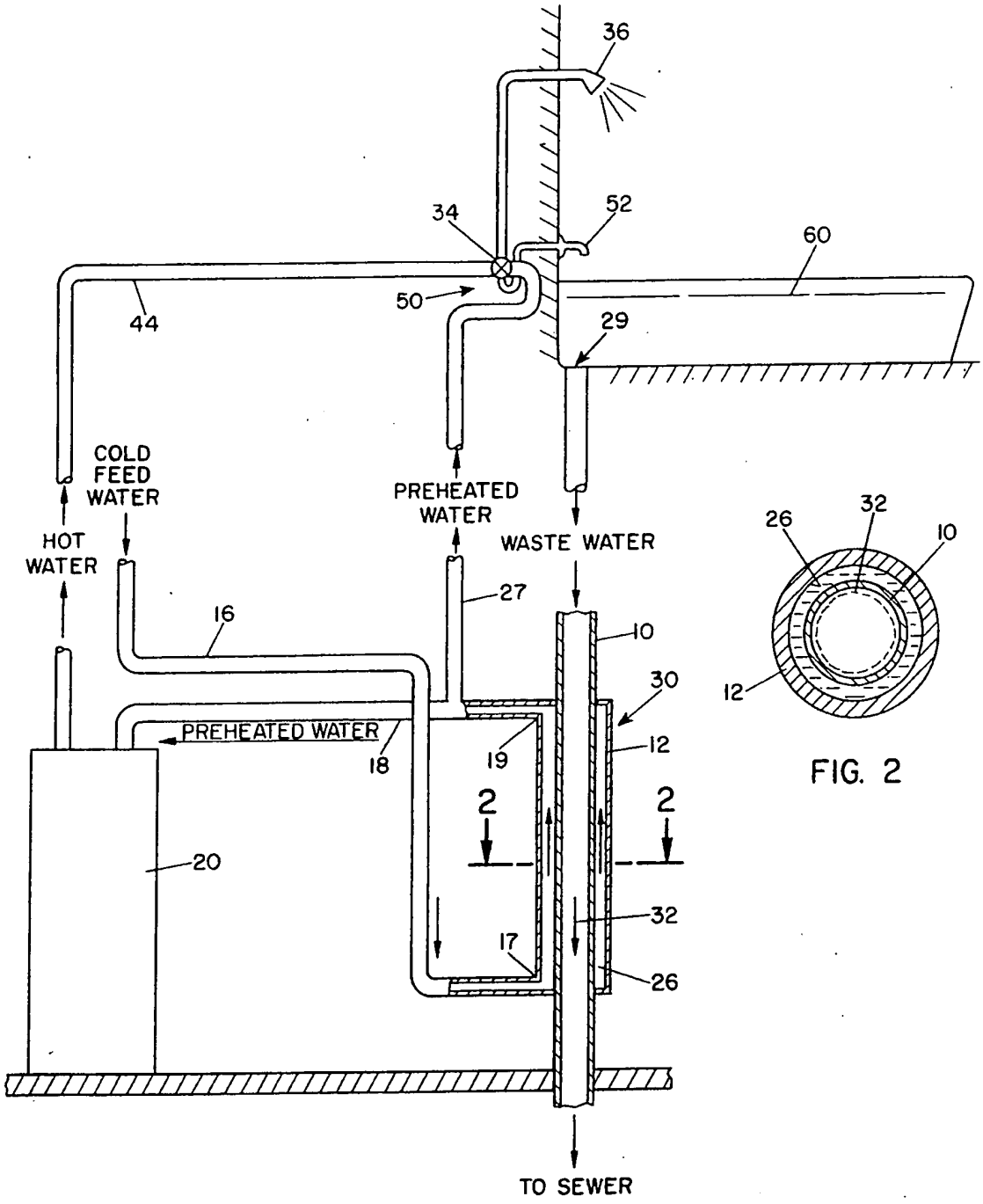

36
34
52
60
50
44
29
COLD
FEED
WATER
PREHEATED
WATER
HOT
WATER
WASTE WATER
27
16
10
30
PREHEATED WATER
18
19
12
2
2
20
32
17
26
TO SEWER

FIG. 1

26
32
10
12

FIG. 2

EQUAL VOLUME, CONTRAFLOW HEAT EXCHANGER

BACKGROUND OF THE INVENTION

1. Field of the Invention

The instant invention relates to a system for improving heat energy recovery from waste hot water whereby cold feedwater is preheated and then further heated and stored in a hot waterheater. Simultaneously, the system also provides for the preheated cold feed water to be mixed with hot water for direct use as tepid water.

The system further provides for multiple user operation at little additional expense and does not require additional storage or buffer tanks or other complex accessories.

2. Description of the Prior Art

The prior art is exemplified by many examples of heat reclaimation systems, most of which are expensive, complicated and require periodic cleaning and maintenance in order to avoid fouling and/or degradation of heat recovery efficiency; examples of which are shown in U.S. Pat. Nos. 4,304,292; 4,300,247; 4,150,787; 4,352,391 and 4,372,372. However, as will be seen herein, there are no existing systems that are as simple, versatile and inexpensive as the instant invention.

SUMMARY OF THE INVENTION

In the present invention, the disadvantages of the prior art are overcome by using a relatively simple heat exchanger configuration having a sufficiently large inside diameter and proper orientation such that waste water is discouraged from filling said heat exchanger, but is instead encouraged to flow rapidly through said heat exahanger in the form of a film providing self-cleaning, non-fouling, maintenance-free operation.

Although said waste water spends a short period of time in transversing said heat exchanger, significant waste heat energy can be recovered by clever design which benefits from a combination of natural forces due to the earth's gravity and rotation which cause the waste water to spread out in a relatively thin sheet, against the inner wall of said heat enchanger, where, said waste water can be placed into thermal contact with cooler water destined for use as water heater feedwater and/or the production of tepid water by mixing with hot water, for example, as in showering.

The use of said heat exchanger in this manner is inventive because we teach herein that said heat exchanger must not be filled with waste water whereas prior art teaches that the heat exchanger must be filled with waste water. This allows the waste water to flow as a film. Furthermore, said heat exchanger provides an equal volume and opposite counterflow design which is simple, whereas prior art heat exchanger designs are more complicated as they often include means for cleaning and maintaining.

Finally, due to the simplicity of said heat exchanger design, sewage and the like can pass through, whereas prior art heat exchangers will likely foul if sewage were to enter the waste water inlet.

Thus, the non-fouling property of the present invention enables said heat exchanger to be inserted directly into a main waste water line and thereby efficiently recover waste heat produced by multiple sources, located for example, at various places in a multi-family dwelling, or the like.

DESCRIPTION OF THE DRAWING

FIG. 1 of the drawing shows a system whereby cold feed water is preheated in a heat exchanger and is then further heated and stored in a conventional hot water heater. The same heat exchanger is used via pipe 27 to reduce the quantity of hot water required in preparing a tepid water mixture for direct use as in showering, for example.

FIG. 2 of the drawing is a cross section along lines 2—2 and shows the cross section of a typical heat exchanger according to the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The prior art includes many techniques for the recovery of heat energy contained in waste water. As disclosed, for example, in U.S. Pat. Nos. 4,304,292; 4,300,247; 4,321,798; 4,150,787; 4,352,391 and 4,372,372, water used for showering, as well as other purposes, and discharged through drain lines can be placed into a heat exchange relationship with colder feed water in order to preheat either water heater feed water and/or cold water prior to mixing with hot water to provide tepid water for direct use. (See also A.A. Field, Heating/Piping/Air Conditioning, Volume 48, No. 3, pp. 87-91, "Solar Energy: Part II, The Continent," March 1976.)

Said heat exchange relationship conserves energy by lowering the temperature of said waste water by transferring heat energy to said feed water, or said cold water, or both, thereby reducing primary hot water heater input energy requirements and the quantity of hot water used in showering, for example. The present invention is directed at installations whereby tepid water is produced by mixing hot and cold water in a mixing valve 34, for example.

Referring to FIGS. 1 and 2 of the drawing, cold feed water enters the system through cold water pipe 16 which is connected to heat exchanger 30 at inlet 17 and exits heat exchanger 30 as preheated feed water at outlet 19 which is communicated to hot water heater 20 by pipe 18 where said preheated feed water is further heated and stored for domestic hot water requirements. Waste water pipe 10 is provided to take the waste water from bathtubs, sinks, showers, hot industrial equipments and etc., and communicate same to the sewer.

The inventive feature illustrated in FIG. 1 is the use of a substantially vertically oriented heat exchanger 30, that is inserted directly into a common drain conduit 10. Exchanger 30 pre-heats a volume of feed water 18 and cold water 27 equal to the waste water volume from drain 29 of tub 60 prior to mixing 50 with hot water 44 in valve 34, having shower outlet 36 and bath outlet 52, for example. Jönsson (U.S. Pat. No. 4,352,391) teaches usage of a more complicated heat exchanger without equal volume flow.

Jönsson and others, however, fail to teach the significance of preheating both feed water 18 and cold water 27 prior to mixing 27 so that equal volumes of cold and waste water are flowing through the exchanger at the same rate. For example, if 1.5 gpm of cold water 50 were mixed with 1.5 gpm of hot water 44, 3.0 gpm would flow as waste water 32 at a temperature equal to the average of the premixed two water temperatures. If, as Jönsson or Hunter (U.S. Pat. No. 4,372,372) teaches,

one installed an optimized heat exchanger having an effectiveness of 80%, for example, the best one can extract is about 40% of the waste water heat energy. This is because, in accordance with the laws of thermodynamics, the volume of the waste water is twice that of the cold water to which it is transferring heat.

The present invention, however, teaches a method for causing equal volumes of waste water 32 and cold feed water 16 to exchange heat energy. Thus, in the present invention, a similar 80%, not 40%, of the heat energy is extracted from in the waste water. This is the essence of the present invention. Buffer storage tanks are therefore not required in order to achieve cost effective waste heat recovery.

The system according to the invention will operate most efficiently if heat exchanger 30 is mounted with a substantially vertical orientation with waste hot water 32 in waste water pipe 10 spiraling around the inner metal walls of said pipe as indicated in FIG. 2. Sense of pitch should be in such a direction as to enhance natural spiraling due to Coriolis effect (e.g. in Northern Hemisphere clockwise when viewed downward.) In installations where vertical mounting is not possible, such as in homes without basements, a pump system togehter with flow control valves would then be required to raise the waste water up to the level of the heat exchanger input for the purpose of achieving useful heat recovery efficiency and ensure self-cleaning, non-fouling, maintenance-free operation of the heat exchanger. In many installations, waste water 32, for example, will have gained sufficient speed and centrifugal force due to gravity and the earth's rotation to produce efficient heat exchange.

As shown in FIGS. 1 and 2, co-axial contraflow heat exchanger 30 is provided and comprises an inner waste pipe 10 that carries waste water from the sources such as the bathtubs, shower stalls and sinks to the sewer for disposal. The heat exchanger design may be of various types. As shown in FIG. 2, waste pipe 10 is surounded by a jacket of cold feed water 26 which in turn is contained by outer pipe 12. The waste hot water 32 in waste pipe 10 and cold feed water 26 flow in opposite directions to one another. This contraflow yields a more efficient heat exchange between the hot waste water and cold feed water than codirected flow.

The materials of construction may be of various types such as copper and aluminum for waste pipe 10 and cold water pipe 46 and for outer pipe 12 material such as PVC may be used although other materials may be substituted. Teflon coating on the inside wall of pipe 10 may be helpful in minimizing efficiency losses due to sewage fouling of its inner surfaces. Preferably, drain 29 has a smaller diameter than the diameter of waste pipe 10 so that waste water 32, flowing downward, is encouraged to form a film about the inner surface of inner cylindrical pipe 10. This also prevents waste water 32 from filling pipe 10.

Two or more heat exchangers may be used in tandem to increase the efficiency of heat transfer.

While the form of apparatus herein described constitutes a preferred embodiment of the invention, it is understood that the invention is not limited to this precise form of apparatus and that changes may be made therein without departing from the scope of this invention.

What is claimed is:

1. An apparatus for use in combination with a water heating system wherein the system includes

(1) a cold water feed;

(2) a water heater having an inlet connected to the cold water feed and a hot water outlet, and

(3) a facility connected to the cold water feed and the hot water outlet and having a waste pipe for carrying mixed hot and cold water, the facility having a means for mixing the cold and hot water and immediately providing the mixed water to the waste pipe;

said apparatus comprising:

(a) first means including a cylindrical member connected to the waste pipe for directing the flow of the mixed hot and cold water in the form of a film spiraling downward over the inner surface of the cylindrical member; and

(b) second means connected in-line with the cold water feed prior to the cold water feed connections to the facility and prior to the cold water feed connections to the water heater for directing the flow of cold water flowing in the cold water feed upward in contact with the outer surface of the cylindrical member, said second means directing the cold water flowing in contact with the outer surface of the cylindrical member in a direction opposite to the direction of flow of the mixed hot and cold water flowing in contact with the inner surface of the cylindrical member whereby the volume of water flowing through the first means is equal to the volume of the water flowing through the second means.

2. The apparatus of claim 1 wherein said first means is a vertical pipe and said second means is a jacket surrounding the vertical pipe.

3. An apparatus for transferring heat to a first fluid supplied by a cold water feed pipe which supplies cold water to a hot water heater, said heat being supplied from a waste water supply from a facility resulting from the mixing of water from the cold water feed and heated water from the hot water heater, said apparatus comprising:

a vertical pipe connected to the first source pipe and having a diameter greater than the diameter of the first source pipe, the vertical pipe directing the flow of the first fluid in the form of a film spiraling downward over the inner surface of the vertical pipe;

a jacket surrounding the vertical pipe and connected to the second source, the jacket having an inlet and an outlet and directing the flow of the second fluid upward over the outer surface of the vertical pipe; and

means for controlling the volume of the second fluid flowing through the jacket so that the flow rate of the second fluid flowing through the jacket equals the flow rate of the first fluid flowing through the vertical pipe; wherein said means for controlling is:

a first pipe interconnecting the waste water supply and the vertical pipe;

a second pipe connecting the jacket inlet to the cold water feed supply prior to supplying cold water to the hot water heater and prior to supplying cold water to the facility; and

a third pipe connecting the jacket outlet to the hot water heater and to the facility, the third pipe for supplying cold water to the hot water heater and to the facility.

4. The apparatus of claim 3 wherein the second fluid is a cold water feed which supplies cold water to a hot

water heater and the first fluid is a waste water supply from a facility resulting from the mixing of water from the cold water feed and heated water from the hot water heater; and wherein said means for controlling is:

a first pipe interconnecting the waste water supply and the vertical pipe,

a second pipe connecting the jacket inlet to the cold water feed supply prior to supplying cold water to the hot water heater and prior to supplying cold water to the facility; and

a third pipe connecting the jacket outlet to the hot water heater and to the facility, the third pipe for supplying cold water to the hot water heater and to the facility.

* * * * *

Terry Janssen

From: John Lebo <JohnL@doucetteindustries.com>
To: Terry E. Janssen (E-mail) <tjanssen@northamericanenergyco.com>
Cc: Carmine Vasile (E-mail) <gfx-ch@msn.com>
Sent: Friday, June 28, 2002 3:02 PM
Subject: Our Q-12658

Terry,

Per your 6/26/02 phone request, we quote the following two models for your consideration to be used in conjunction with geothermal heat pumps.

The "drain" pipe is made of Type L hard copper tubing. Type L is what's used in homes.

The water flow rate in the main is given for reference because that's what it balances out to be.

Loop GPM is based on a 10F split. Please advise with any questions. johnL

A. Model: G6-60-3 (6 x 1)
GFX Vented Double Wall Heat Exchanger
Perf: Cool 6.9 GPM of loop water from 80 to 70F, 5.1 psi PD
using 34.3 GPM of main water from 54 to 56F
Const: Type L hard large tube
Type L light annealed coil tubing
Manifolding Type L copper tubing
Fittings - standard refrigeration quality
Design: 150# DWP
Conn: 6-1/8" OD main
1-1/8" ID coil side manifold
Price: $ 1,700.00 List each
Ship: 3-4 Weeks ARO
Terms: FOB York, PA / Net 30

B. Model: G6-80-4 (6 x 1-1/4)
GFX Vented Double Wall Heat Exchanger
Perf: Cool 9.2 GPM of loop water from 80 to 70F, 5.2 psi PD
using 46.2 GPM of main water from 54 to 56F
Const: Type L hard large tube
Type L light annealed coil tubing
Manifolding Type L copper tubing
Fittings - standard refrigeration quality
Design: 150# DWP
Conn: 6-1/8" OD main
1-3/8" ID coil side manifold
Price: $ 2,250.00 List each
Ship: 3-4 Weeks ARO

EXHIBIT
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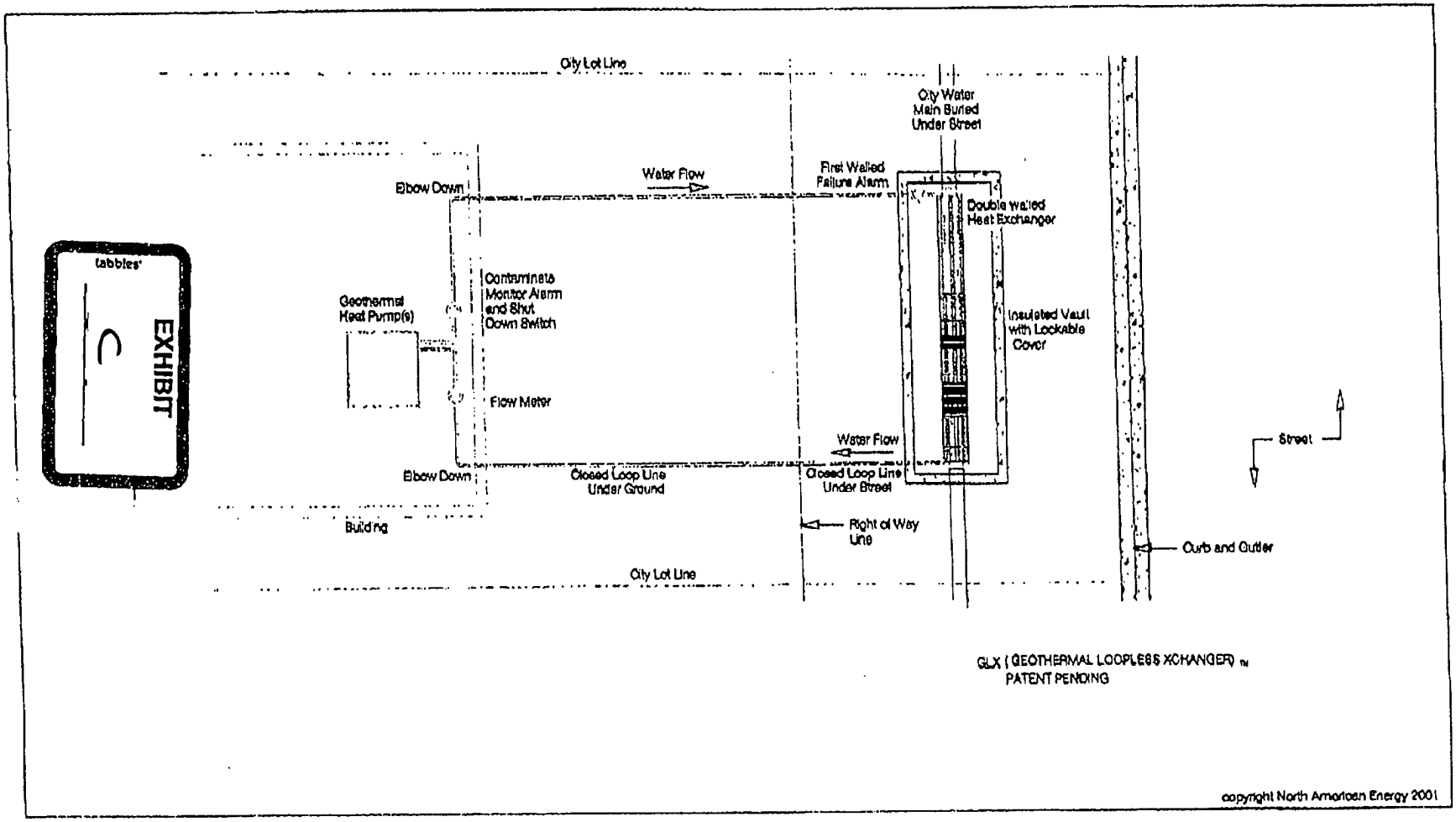
6/28/02


City Lot Line
City Water Main Buried Under Street
Water Flow
First Walled Failure Alarm
Elbow Down
Double walled Heat Exchanger
tabbies'
EXHIBIT
C
Contaminate Monitor Alarm and Shut Down Switch
Geothermal Heat Pump(s)
Insulated Vault with Lockable Cover
Flow Meter
Water Flow
Street
Elbow Down
Closed Loop Line Under Ground
Closed Loop Line Under Street
Building
Right of Way Line
Curb and Gutter
City Lot Line
GLX (GEOTHERMAL LOOPLESS XCHANGER ™
PATENT PENDING
copyright North American Energy 2001

Notes/History

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Palm Harbor, FL 34684

Company WaterFilm Energy Inc
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Address 2
Address 3
City Medford
State NY *ZIP Code* 11763
Home Address 2

Web Site www.oikos.com

Contact : WaterFilm Energy Inc			**Carmine F. Vasile**
E-mail Sent	2/3/2003	9:54 AM	Subject: Copy of response to lead
E-mail Sent	12/14/2002	7:07 PM	Subject: Follow Up
E-mail Sent	8/26/2002	5:32 PM	Subject: Telemark Resort
Call Completed	8/22/2002	5:30 AM	Laundromat design
Call Completed	8/21/2002	3:00 AM	Returning call
E-mail Sent	8/12/2002	7:07 PM	Subject: Window Display
E-mail Sent	8/12/2002	3:01 PM	Subject: Attachment to news article
E-mail Sent	8/9/2002	3:25 PM	Subject: Mills Fleet Farm
E-mail Sent	8/8/2002	6:46 AM	Subject: Lead From Michigan
E-mail Sent	8/6/2002	5:17 PM	Subject: Water Main Heat Exchanger
E-mail Sent	8/5/2002	4:54 PM	Subject: Teasdale GFX
E-mail Sent	8/5/2002	3:22 PM	Subject: Multi Housing News Ad
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E-mail Sent	7/25/2002	12:06 PM	Subject: Copy of E-mail to Don Clem
E-mail Sent	7/18/2002	3:40 PM	Subject: Energy Design Update
E-mail Sent	7/18/2002	2:33 PM	Subject: Milwaukee Idea House
E-mail Sent	7/18/2002	10:00 AM	Subject: E-mail to and from State of Minnesota
E-mail Sent	7/17/2002	6:15 PM	Subject: Solar Heat Exchanger
E-mail Sent	7/17/2002	5:43 PM	Subject: Heat Exchanger for Solar
E-mail Sent	7/17/2002	2:23 PM	Subject: Property Inspections for GFX
E-mail Sent	7/16/2002	10:58 AM	Subject: Delta Mechanical
E-mail Sent	7/11/2002	5:33 PM	Subject: Contact Info
E-mail Sent	7/11/2002	5:22 PM	Subject: Copy of response to CET e-mail
E-mail Sent	7/11/2002	5:12 PM	Subject: E-mail from Creative Energy Technology
E-mail Sent	7/11/2002	2:39 PM	Subject: Copy of E-mail to Henry
E-mail Sent	7/10/2002	1:27 PM	Subject: Advertising and promotion
E-mail Sent	7/10/2002	6:38 AM	Subject: Reply to Tom St. Louis
E-mail Sent	7/8/2002	6:09 PM	Subject: Copy of e-mail to GoodCents
E-mail Sent	7/8/2002	5:47 PM	Subject: copy of e-mail to Carsten Ginsburg
E-mail Sent	7/8/2002	2:38 PM	Subject: Marketing
E-mail Sent	7/5/2002	3:08 PM	Subject: Major Response
E-mail Sent	7/3/2002	1:51 PM	Subject: North American Web Site
E-mail Sent	7/3/2002	9:23 AM	Subject: Reponse received from Creative Technology
E-mail Sent	7/2/2002	5:44 PM	Subject: Copy of e-mail to Ecolab

Exhibit D

Notes/History

T. E. "Terry" Janssen, My Record
35246 US Hwy 19
#316
actionmgt@comcast.net
Palm Harbor, FL 34684

E-mail Sent	7/2/2002	5:31 PM	Subject: Copy of e-mail to Todd Warner
E-mail Sent	7/2/2002	4:49 PM	Subject: E-mail to Jay McDonald
E-mail Sent	7/2/2002	4:42 PM	Subject: Update
E-mail Sent	7/2/2002	4:32 PM	Subject: Sales activity update
E-mail Sent	6/27/2002	8:23 PM	Subject: GFX Web site
E-mail Sent	6/26/2002	4:49 PM	Subject: GFX Sales
E-mail Sent	6/26/2002	9:21 AM	Subject: E-mail copy
E-mail Sent	6/26/2002	9:17 AM	Subject: Copy of E-mail
E-mail Sent	6/26/2002	7:55 AM	Subject: Copy of e-mail correspondence with Heliodyne
E-mail Sent	6/25/2002	2:23 PM	Subject: Copy of E-mail sent to Heloidyne Solar
E-mail Sent	6/25/2002	1:52 PM	Subject: Copy of E-mail to GMB Architects & Engineers Holland, MI
E-mail Sent	6/25/2002	1:32 PM	Subject: Copy of E-mail to Gaiam & Real Goods
E-mail Sent	6/25/2002	1:16 PM	Subject: Copy of E-mail to Muscatine Power
E-mail Sent	6/25/2002	12:58 PM	Subject: E-mail to Alternative Energy Store
E-mail Sent	6/25/2002	12:45 PM	Subject: Copy of e-mail to Tom St. Louis
E-mail Sent	6/20/2002	10:12 AM	Subject: Nebraska Lead
E-mail Sent	6/18/2002	8:53 PM	Subject: Edited GFX Brochure
E-mail Sent	6/17/2002	6:19 AM	Subject: Endless Shower web site
E-mail Sent	6/14/2002	6:02 PM	Subject: Copy of E-mail to Safe Building Solutions
E-mail Sent	6/14/2002	2:00 PM	Subject: Monona Shores Apartments
E-mail Sent	6/14/2002	1:43 PM	Subject: Alliance Laundry
E-mail Sent	6/14/2002	1:33 PM	Subject: E-mail copy sent to Doucette
E-mail Sent	6/13/2002	5:29 PM	Subject: Web site and e-mails
E-mail Sent	6/12/2002	4:04 PM	Subject: Advertising
E-mail Sent	6/12/2002	2:47 PM	Subject: Popular Science Ad
E-mail Sent	6/5/2002	5:35 PM	Subject: Copy of Jay Mcdonald E-mail
To-do Done	6/3/2002	8:21 AM	Should have rec'd executed copy of agreement
E-mail Sent	5/30/2002	10:50 AM	Subject: E-mail Sent to John
E-mail Sent	5/29/2002	9:40 AM	Subject: Leads & Advertising
Call Completed	5/29/2002	8:07 AM	Reveiw agreement
Field Changed	5/29/2002	7:29 AM	ID/Status - WFSHE-Suppliers Heat Exgr
Note	5/29/2002	7:21 AM	Dr. Carmine F. Vasile, President WaterFilm Energy Inc.; P.O. Box 128; Medford, NY 11763 USA Rep for Doucette Industries; Except: WA, OR, ID, MT, CA, NV, UT, WY, CO, AZ, NM, AK, HI Tel: 631-758-6271 Fax: 631-758-0438 Email: gfx-ch@msn.com Web: http://oikos.com/gfx/

Exhibit D

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WaybackMachine

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Searched for http://gfxtechnology.com

125 Results

Note some duplicates are not shown. See all.
* denotes when site was updated.

Search Results for Jan 01, 1996 - Nov 29, 2006

1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
0 pages	0 pages	0 pages	0 pages	0 pages	0 pages	15 pages	28 pages	30 pages	32 pages	1

2002	2003	2004	2005	
Jul 16, 2002 *	Jan 29, 2003 *	Jan 02, 2004 *	Jan 08, 2005 *	Jan
Jul 18, 2002	Feb 02, 2003 *	Jan 10, 2004	Jan 09, 2005	Feb
Jul 23, 2002 *	Feb 07, 2003 *	Jan 11, 2004	Jan 10, 2005	Feb
Aug 08, 2002 *	Feb 20, 2003 *	Jan 31, 2004	Jan 12, 2005	Feb
Aug 10, 2002	Mar 20, 2003 *	Feb 13, 2004	Mar 24, 2005 *	Feb
Aug 12, 2002	Mar 21, 2003	Apr 03, 2004 *	Apr 08, 2005 *	Feb
Aug 13, 2002	Mar 22, 2003	Apr 07, 2004 *	Apr 09, 2005	Feb
Aug 21, 2002 *	Apr 01, 2003	Apr 08, 2004 *	Apr 13, 2005 *	Apr
Aug 27, 2002	Apr 25, 2003 *	May 06, 2004 *	Apr 17, 2005 *	Apr
Sep 22, 2002 *	May 28, 2003	May 19, 2004 *	May 09, 2005	Apr
Sep 24, 2002	Jun 22, 2003 *	May 22, 2004	Jun 20, 2005 *	
Oct 16, 2002	Jun 23, 2003	Jun 04, 2004	Jul 09, 2005 *	
Nov 23, 2002 *	Jun 28, 2003	Jun 07, 2004	Jul 14, 2005	
Nov 28, 2002	Jul 18, 2003 *	Jun 09, 2004	Aug 03, 2005	
Dec 10, 2002	Jul 19, 2003	Jun 11, 2004 *	Aug 31, 2005 *	
	Jul 31, 2003	Jul 11, 2004	Sep 01, 2005	
	Sep 20, 2003 *	Aug 06, 2004 *	Sep 04, 2005	
	Sep 24, 2003	Aug 24, 2004	Sep 09, 2005	
	Oct 01, 2003	Aug 25, 2004	Sep 22, 2005 *	
	Oct 10, 2003	Aug 31, 2004	Oct 24, 2005 *	
	Oct 24, 2003 *	Sep 05, 2004 *	Oct 26, 2005	
	Oct 27, 2003	Sep 10, 2004	Nov 02, 2005 *	
	Nov 22, 2003 *	Sep 20, 2004 *	Nov 26, 2005 *	
	Nov 23, 2003	Sep 24, 2004	Nov 27, 2005 *	
	Nov 30, 2003 *	Oct 10, 2004	Dec 05, 2005	
	Dec 02, 2003	Nov 30, 2004 *	Dec 11, 2005 *	
	Dec 05, 2003	Dec 05, 2004	Dec 12, 2005	
	Dec 25, 2003 *	Dec 11, 2004	Dec 14, 2005	
		Dec 13, 2004	Dec 19, 2005 *	
		Dec 15, 2004	Dec 25, 2005 *	
			Dec 28, 2005	
			Dec 30, 2005 *	

Exhibit E-1

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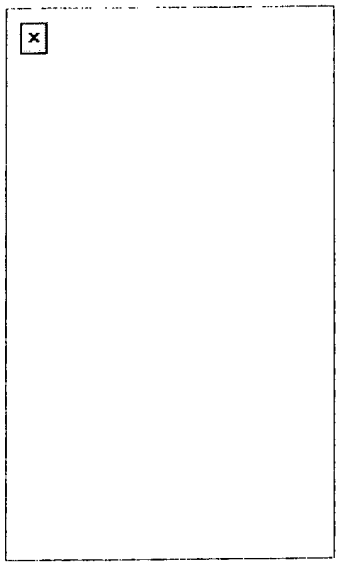
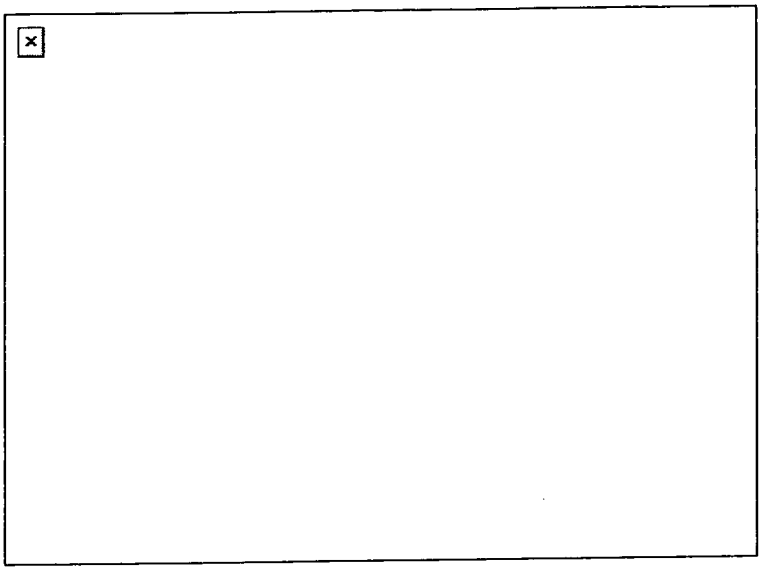
Award-Winning GFX Technology



Why waste energy down the drain?



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Sale: 50% Off All *GFX Models* List Prices Customer Testimonials

GFX Models: Residential Commercial & Industrial Q&A

Shower Costs, S3-60 Photo & Installation Diagram

INDEX TO: Case Studies, Photos, Engineering Drawings, etc.

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Performance Rivals HPWH

Enhances Solar Water Heater Performance

Boosts Efficiency & Power Of Any Water Heating System

$75 GFX-Rebate In Connecticut

Helps Save Water & Energy in Condos, Hotels, Dorms, etc.

Canadian R-2000/Energuide Energy-Credits: Electric 1760 kWh; Natural Gas 96 Therm = 9.9 MBtu = 2,815 kWh-thermal

Why America Should Follow Canada: *A Trillion kWh Down-the-Drain*

Exhibit E-2

Problem: Provide instant hot water in hi-rise buildings to fixtures located far from main recirc loops.

Solution: Install a thermostatically controlled circulator and a GFX on each floor to tap heat off the main recirc loop.

Advantages: Save water and energy, cut sewer charges and eliminate inline water heaters that waste electricity; with GFX protecting the main loop against cross-contamination.

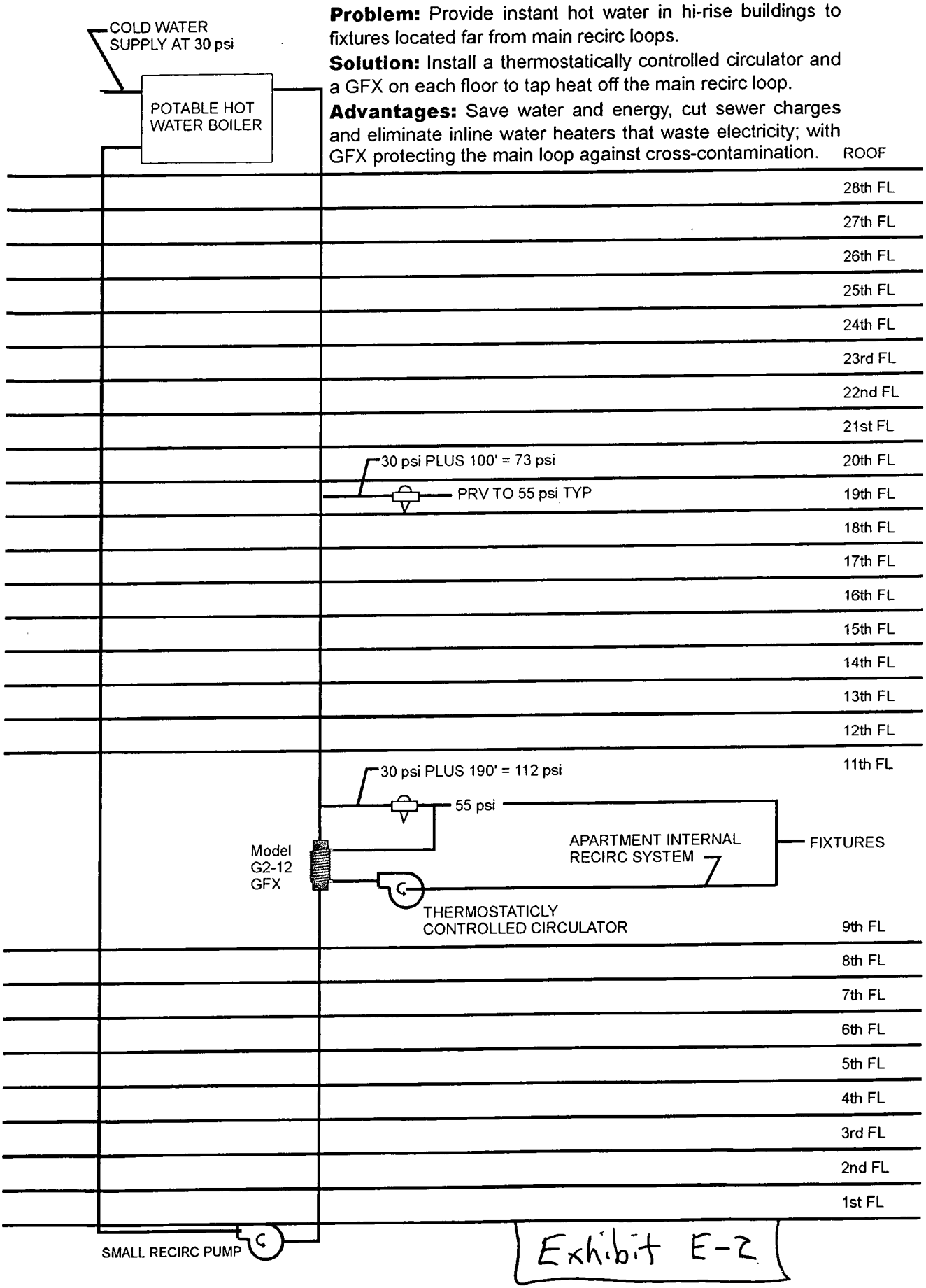


Exhibit E-2

Exhibit E-2

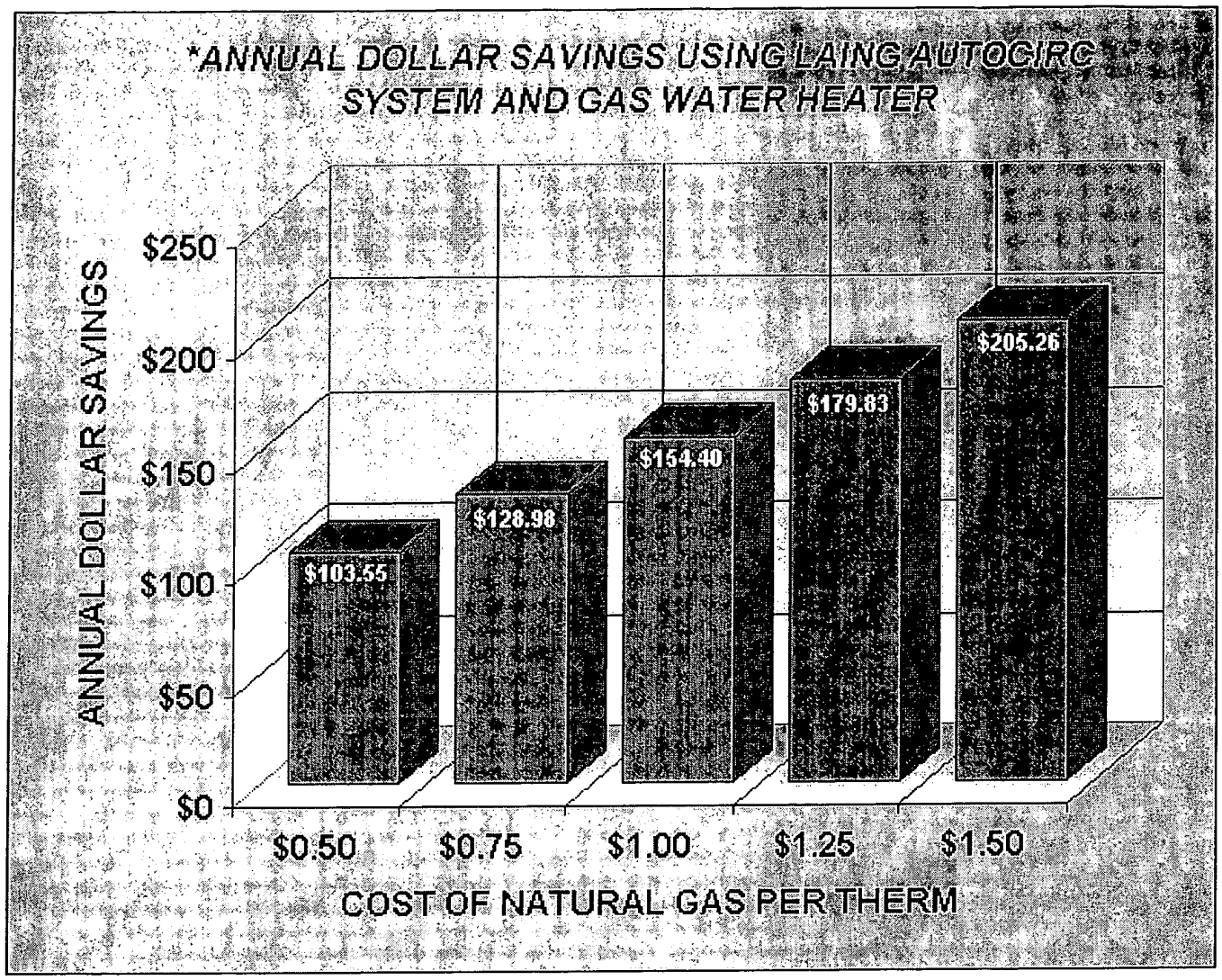


Chart Calculation Factors For Gas Water Heater:

1. Savings of 34.2 gal./day of previously heated water wasted from discharging down drain. (350 days/yr. = 11,970 gal./yr.)
2. Water heater is set at an average temperature of 140°F, has an efficiency rating of 65%, and a heat rise temperature value of 100°F.
3. The incoming water temperature is 40°F.
4. Gas cost per therm includes taxes and charges.
5. Gas savings in therms result from not having to heat wasted water less the gas used to offset piping heat losses. (101.71 therms/yr.)
6. Additional piping heat losses are based on 10 BTU/hr./ft. in 60 feet of ¾" uninsulated hot water supply piping.
7. Water cost is based on $2.02/100 cu. ft. and sewer surcharge cost is based on $1.35/100 ft.3. (Total water cost savings = $53.79/yr.)
8. Cost to run pump = $1.24/yr. (Based on $0.10/kWh, pump running 4 min./hr., 16 hrs./day, and 350 days/yr.)
9. Numbers are rounded off.

Exhibit E-2

Autocirc Savings Using an Electric Water Heater

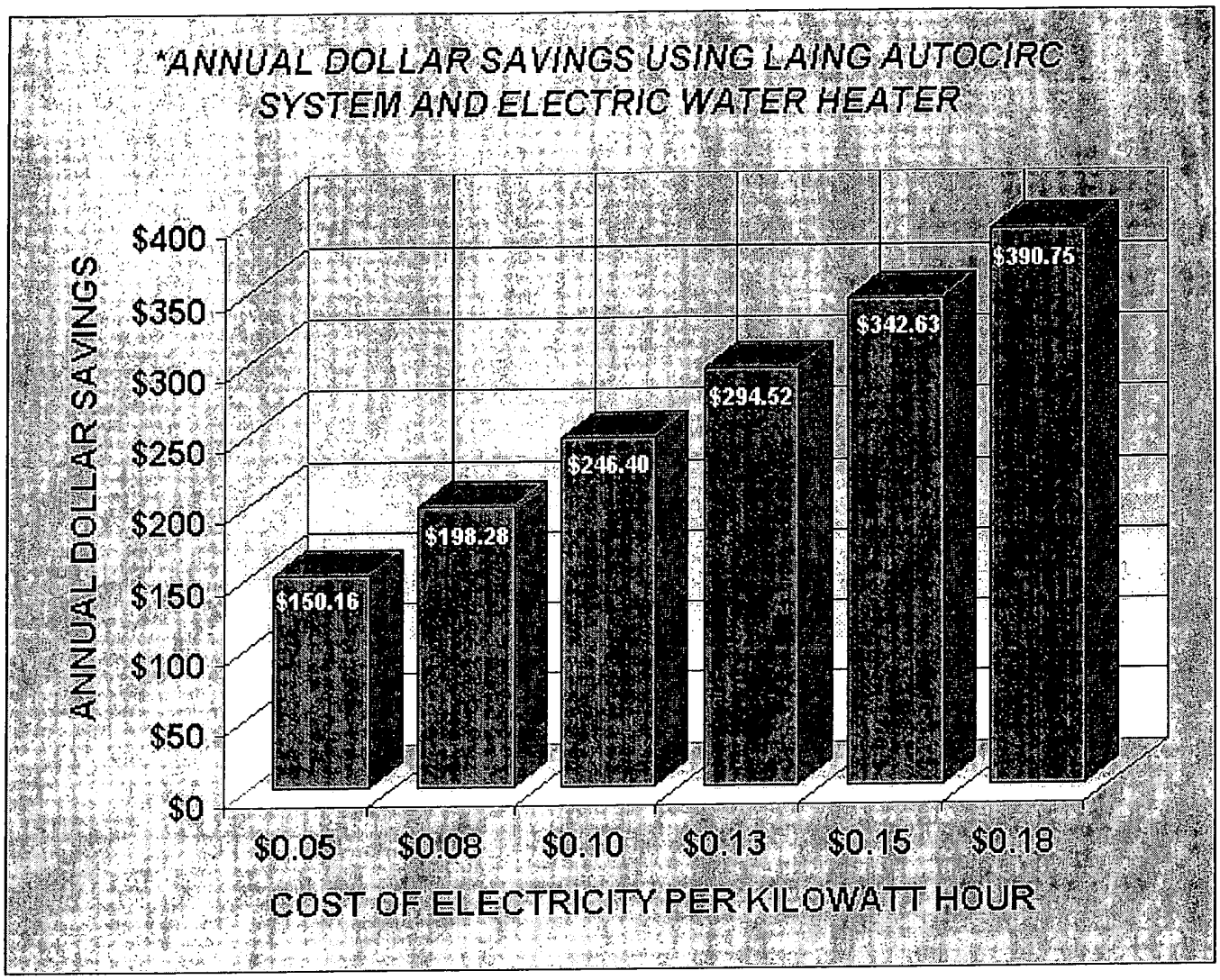


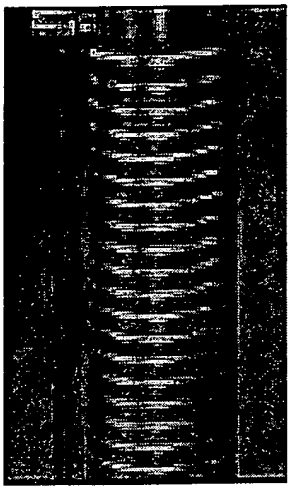
Chart Calculation Factors For Electric Water Heater:

1. Savings of 34.2 gal./day of previously heated water wasted from discharging down drain. (350 days/yr. = 11,970 gal./yr.)
2. Water heater is set at an average temperature of 140°F, has an efficiency rating of 100%, and a heat rise temperature value of 100°F.
3. The incoming water temperature is 40°F.
4. Electrical energy savings in kWh result from not having to heat wasted water less the energy used to offset piping heat losses. (1,924.69 kWh)
5. Cost per kWh includes taxes and charges.
6. Additional piping heat losses are based on 10 BTU/hr./ft. in 60 feet of 3/4" uninsulated hot water supply piping.
7. Water cost is based on $2.02/100 cu. ft. and sewer surcharge cost is based on $1.35/100 ft.3. (Total water cost savings = $53.79/yr.)
8. Cost to run pump = $1.24/yr. (Based on $0.10/kWh, pump running 4 min./hr., 16 hrs./day, and 350 days/yr.)
9. Numbers are rounded off.

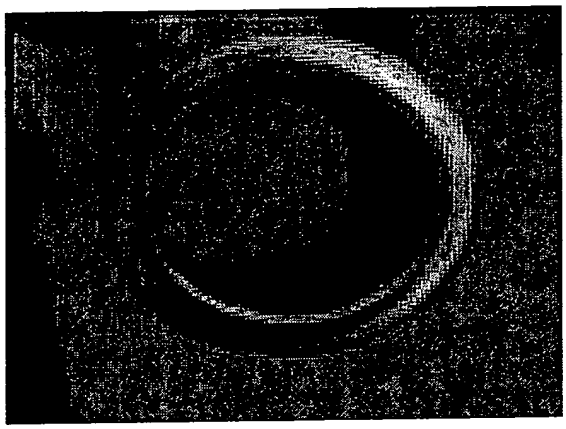
Exhibit E-2

GFXtechnology.com

Award-Winning GFX Water Heater Booster



Why waste energy down-the-drain?



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Canadian R-2000/Energuide Energy-Credits: Electric 1760 kWh; Natural Gas 96 Therm = 9.9 MBtu = 2,815 kWh-thermal

Why America Should Follow Canada: *A Trillion kWh Down-the-Drain*

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Exhibit E-3

Water+® Geothermal HVAC Systems

Water+ is an alternative energy system that dramatically lowers energy bills while helping protect the environment. An "exciting" innovation in geothermal technology, **Water+**, uses a city utility's water main as an earth bop to transport thermal energy stored in the ground to geothermal heat pumps within a home or commercial building. (See www.waterplus.com/ & the following Q&A's below from www.waterplus.com/faq.html)

Problems Affecting Public Safety

Q: Is there a need for double wall heat exchanger?

A: We do not recommend double wall heat exchangers to be used in conjunction with the water+ system. The only installations currently using double wall heat exchanges are the direct return systems. **They reduce operating efficiency enough to put added load on the water plant.** It is an option but should be a last resort due to the increased cost and reduced efficiency.

Q: What happens if the heat exchanger is breached?

A: A typical water+ system has two completely separate loops: the municipal water loop and the building loop. **Ninety-nine percent of the time** if a heat exchanger fails, both fluids would leak to the floor, indicating the need for repair. In the extremely rare event of a breach, the building loop is designed to run at a much lower operating pressure than the municipal water loop. The breach would cause the building loop to over pressurize. A pressure relief value would immediately open allowing the building loop water to dump down the sanitary sewer and once again indicating the need for repair. The heat exchangers used in this system are designed to handle over 400 PSI. Most water systems operate at much lower pressures, 40-70 PSI. It is conceivable that several ounces of mineral oil could get into the water stream. In addition, there can be some freon entry. The mineral oil is of low volume, while not certified as food grade, it is **relatively safe**. The freon is one of advanced materials and will outgas leaving no residue.

WaterFilm Energy's Innovative Solution Eliminates Need to Compromise Public Safety

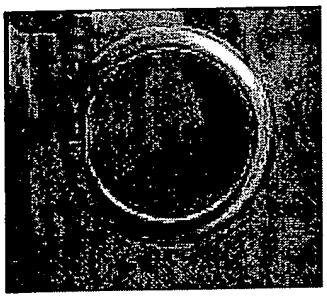

Figure 1. ***S3-60 GFX***

A self-vented, double wall GFX will protect against even a "***relatively* safe**" threat to Public Safety 100% "***of the time***"; without reducing "***operating efficiency enough to put added load on the water plant.***" Figure 1 shows why. Since a GFX's central tube wall is smooth, if its I.D. is matched to a water main's at the point-of-use, there's nothing to restrict flow. Therefore, a water plant will see no increase in back pressure, even if many GFX's were to be inserted into a single main; be it a water main, sewer main or hot water recirc-loop.

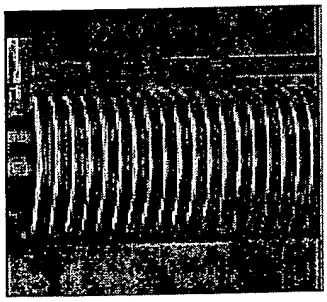

Figure 2. ***S3-60 GFX***

Exhibit E-3